

## Subpart KK—National Emission Standards for the Printing and Publishing Industry

SOURCE: 61 FR 27140, May 30, 1996, unless otherwise.

### § 63.820 Applicability.

(a) The provisions of this subpart apply to:

(1) Each new and existing facility that is a major source of hazardous air pollutants (HAP), as defined in 40 CFR 63.2, at which publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses are operated, and

(2) each new and existing facility at which publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses are operated for which the owner or operator chooses to commit to, and meets the criteria of paragraphs (a)(2)(i) and (a)(2)(ii) of this section for purposes of establishing the facility to be an area source with respect to this subpart:

(i) Use less than 9.1 Mg (10 tons) per each rolling 12-month period of each HAP at the facility, including materials used for source categories or purposes other than printing and publishing, and

(ii) Use less than 22.7 Mg (25 tons) per each rolling 12-month period of any combination of HAP at the facility, including materials used for source categories or purposes other than printing and publishing.

(3) Each facility for which the owner or operator chooses to commit to and meets the criteria stated in paragraph (a)(2) of this section shall be considered an area source, and is subject only to the provisions of § 63.829(d) and § 63.830(b)(1) of this subpart.

(4) Each facility for which the owner or operator commits to the conditions in paragraph (a)(2) of this section may exclude material used in routine janitorial or facility grounds maintenance, personal uses by employees or other persons, the use of products for the purpose of maintaining electric, propane, gasoline and diesel powered motor vehicles operated by the facility, and the use of HAP contained in intake water (used for processing or noncontact cooling) or intake air (used either as compressed air or for combustion).

(5) Each facility for which the owner or operator commits to the conditions in paragraph (a)(2) of this section to become an area source, but subsequently exceeds either of the thresholds in paragraph (a)(2) of this section for any rolling 12-month period (without first obtaining and complying with other limits that keep its potential to emit HAP below major source levels), shall be considered in violation of its commitment for that 12-

month period and shall be considered a major source of HAP beginning the first month after the end of the 12-month period in which either of the HAP-use thresholds was exceeded. As a major source of HAP, each such facility would be subject to the provisions of this subpart as noted in paragraph (a)(1) of this section and would no longer be eligible to use the provisions of paragraph (a)(2) of this section, even if in subsequent 12-month periods the facility uses less HAP than the thresholds in paragraph (a)(2) of this section.

(6) An owner or operator of an affected source subject to paragraph (a)(2) of this section who chooses to no longer be subject to paragraph (a)(2) of this section shall notify the Administrator of such change. If, by no longer being subject to paragraph (a)(2) of this section, the facility at which the affected source is located becomes a major source:

(i) The owner or operator of an existing source must continue to comply with the HAP usage provisions of paragraph (a)(2) of this section until the source is in compliance with all relevant requirements for existing affected sources under this subpart;

(ii) The owner or operator of a new source must continue to comply with the HAP usage provisions of paragraph (a)(2) of this section until the source is in compliance with all relevant requirements for new affected sources under this subpart.

(7) Nothing in this paragraph is intended to preclude a facility from establishing area source status by limiting its potential to emit through other appropriate mechanisms that may be available through the permitting authority.

(b) This subpart does not apply to research or laboratory equipment.

### § 63.821 Designation of affected sources.

(a) The affected sources subject to this subpart are:

(1) All of the publication rotogravure presses and all affiliated equipment, including proof presses, cylinder and parts cleaners, ink and solvent mixing and storage equipment, and solvent recovery equipment at a facility.

(2) All of the product and packaging rotogravure or wide-web flexographic printing presses at a facility plus any other equipment at that facility which the owner or operator chooses to include in accordance with paragraph (a)(3) of this section, except

(i) Proof presses, and

(ii) Any product and packaging rotogravure or wide-web flexographic press which is used primarily for coating, laminating, or other operations which the owner or operator chooses to exclude, provided that

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(A) The sum of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, and other materials applied by the press using product and packaging rotogravure work stations and the total mass of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, and other materials applied by the press using wide-web flexographic print stations in each month never exceeds five weight-percent of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, and other materials applied by the press in that month, including all inboard and outboard stations, and

(B) The owner or operator maintains records as required in § 63.829(f).

(3) The owner or operator of an affected source, as defined in paragraph (a)(2) of this section, may elect to include in that affected source stand-alone coating equipment subject to the following provisions:

(i) Stand-alone coating equipment meeting any of the criteria specified in this subparagraph is eligible for inclusion:

(A) The stand-alone coating equipment and one or more product and packaging rotogravure or wide-web flexographic presses are used to apply solids-containing materials to the same web or substrate, or

(B) The stand-alone coating equipment and one or more product and packaging rotogravure or wide-web flexographic presses apply a common solids-containing material, or

(C) A common control device is used to control organic HAP emissions from the stand-alone coating equipment and from one or more product and packaging rotogravure or wide-web flexographic printing presses;

(ii) All eligible stand-alone coating equipment located at the facility is included in the affected source; and

(iii) No product and packaging rotogravure or wide-web flexographic presses are excluded from the affected source under the provisions of paragraph (a)(2)(ii) of this section.

(b) Each product and packaging rotogravure or wide-web flexographic printing affected source at a facility that is a major source of HAP, as defined in 40 CFR 63.2, that complies with the criteria of paragraphs (b)(1) or (b)(2) on and after the applicable compliance date as specified in § 63.826 of this subpart is subject only to the requirements of § 63.829(e) and § 63.830(b)(1) of this subpart.

(1) The owner or operator of the source applies no more than 500 kg per month, for every month, of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, and other materials on product and packaging rotogravure or wide-web flexographic printing presses, or

(2) The owner or operator of the source applies no more than 400 kg per month, for every month, of organic HAP on product and packaging rotogravure or wide-web flexographic printing presses.

(c) Each product and packaging rotogravure or wide-web flexographic printing affected source at a facility that is a major source of HAP, as defined in 40 CFR 63.2, that complies with neither the criterion of paragraph (b)(1) nor (b)(2) of this section in any month after the applicable compliance date as specified in § 63.826 of this subpart is, starting with that month, subject to all relevant requirements of this subpart and is no longer eligible to use the provisions of paragraph (b) of this section, even if in subsequent months the affected source does comply with the criteria of paragraphs (b)(1) or (b)(2) of this section.

### § 63.822 Definitions.

(a) All terms used in this subpart that are not defined below have the meaning given to them in the CAA and in subpart A of this part.

*Always-controlled work station* means a work station associated with a dryer from which the exhaust is delivered to a control device, with no provision for the dryer exhaust to bypass the control device. Sampling lines for analyzers and relief valves needed for safety purposes are not considered bypass lines.

*Capture efficiency* means the fraction of all organic HAP emissions generated by a process that are delivered to a control device, expressed as a percentage.

*Capture system* means a hood, enclosed room, or other means of collecting organic HAP emissions into a closed-vent system that exhausts to a control device.

*Car-seal* means a seal that is placed on a device that is used to change the position of a valve or damper (e.g., from open to closed) in such a way that the position of the valve or damper cannot be changed without breaking the seal.

*Certified product data sheet (CPDS)* means documentation furnished by suppliers of inks, coatings, varnishes, adhesives, primers, solvents, and other materials or by an outside laboratory that provides the organic HAP content of these materials, by weight, measured using Method 311 of appendix A of this part 63 or an equivalent or alternative method (or formulation data as provided in § 63.827(b)) and the solids content of these materials, by weight, determined in accordance with § 63.827(c). The purpose of the CPDS is to assist the owner or operator in demonstrating compliance with the emission limitations presented in §§ 63.824–63.825.

*Coating operation* means the application of a uniform layer of material across the entire width of a substrate.

*Coating station* means a work station on which a coating operation is conducted.

*Control device* means a device such as a carbon adsorber or oxidizer which reduces the organic HAP in an exhaust gas by recovery or by destruction.

*Control device efficiency* means the ratio of organic HAP emissions recovered or destroyed by a control device to the total HAP emissions that are introduced into the control device, expressed as a percentage.

*Day* means a 24-consecutive-hour period.

*Facility* means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

*Flexographic press* means an unwind or feed section, a series of individual work stations, one or more of which is a flexographic print station, any dryers (including interstage dryers and overhead tunnel dryers) associated with the work stations, and a rewind, stack, or collection station. The work stations may be oriented vertically, horizontally, or around the circumference of a single large impression cylinder. Inboard and outboard work stations, including those employing any other technology, such as rotogravure, are included if they are capable of printing or coating on the same substrate.

*Flexographic print station* means a work station on which a flexographic printing operation is conducted. A flexographic print station includes a flexographic printing plate which is an image carrier made of rubber or other elastomeric material. The image (type and art) to be printed is raised above the printing plate.

*HAP applied* means the organic HAP content of all inks, coatings, varnishes, adhesives, primers, solvent, and other materials applied to a substrate by a product and packaging rotogravure or wide-web flexographic printing affected source.

*HAP used* means the organic HAP applied by a publication rotogravure printing affected source, including all organic HAP used for cleaning, parts washing, proof presses, and all organic HAP emitted during tank loading, ink mixing, and storage.

*Intermittently-controllable work station* means a work station associated with a dryer with provisions for the dryer exhaust to be delivered to or diverted from a control device depending on the position of a valve or damper. Sampling lines for analyzers and relief valves needed for safety purposes are not considered bypass lines.

*Month* means a calendar month or a prespecified period of 28 days to 35 days.

*Never-controlled work station* means a work station which is not equipped with provisions by which any emissions, including those in the ex-

haust from any associated dryer, may be delivered to a control device.

*Overall Organic HAP control efficiency* means the total efficiency of a control system, determined either by:

- (1) The product of the capture efficiency and the control device efficiency or
- (2) A liquid-liquid material balance.

*Print station* means a work station on which a printing operation is conducted.

*Printing operation* means the formation of words, designs, and pictures on a substrate other than fabric through the application of material to that substrate.

*Product and packaging rotogravure printing* means the production, on a rotogravure press, of any printed substrate not otherwise defined as publication rotogravure printing. This includes, but is not limited to, folding cartons, flexible packaging, labels and wrappers, gift wraps, wall and floor coverings, upholstery, decorative laminates, and tissue products.

*Proof press* means any device used only to check the quality of the image formation of rotogravure cylinders or flexographic plates, which prints only non-saleable items.

*Publication rotogravure printing* means the production, on a rotogravure press, of the following saleable paper products:

- (1) Catalogues, including mail order and premium,
- (2) Direct mail advertisements, including circulars, letters, pamphlets, cards, and printed envelopes,
- (3) Display advertisements, including general posters, outdoor advertisements, car cards, window posters; counter and floor displays; point of purchase and other printed display material,
- (4) Magazines,
- (5) Miscellaneous advertisements, including brochures, pamphlets, catalog sheets, circular folders, announcements, package inserts, book jackets, market circulars, magazine inserts, and shopping news,
- (6) Newspapers, magazine and comic supplements for newspapers, and preprinted newspaper inserts, including hi-fi and spectacolor rolls and sections,
- (7) Periodicals, and
- (8) Telephone and other directories, including business reference services.

*Research or laboratory equipment* means any equipment for which the primary purpose is to conduct research and development into new processes and products, where such equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner.

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*Rotogravure press* means an unwind or feed section, a series of one or more work stations, one or more of which is a rotogravure print station, any dryers associated with the work stations, and a rewind, stack, or collection section. Inboard and outboard work stations including those employing any other technology, such as flexography, are included if they are capable of printing or coating on the same substrate.

*Rotogravure print station* means a work station on which a rotogravure printing operation is conducted. A rotogravure print station includes a rotogravure cylinder and ink supply. The image (type and art) to be printed is etched or engraved below the surface of the rotogravure cylinder. On a rotogravure cylinder the printing image consists of millions of minute cells.

*Stand-alone coating equipment* means an unwind or feed section, a series of one or more coating stations and any associated dryers, and a rewind, stack or collection section that:

Is not part of a product and packaging rotogravure or wide-web flexographic press, and

Is used to conduct one or more coating operations on a substrate. Stand-alone coating equipment

May or may not process substrate that is also processed by a product and packaging rotogravure or wide-web flexographic press, apply solids-containing materials that are also applied by a product and packaging rotogravure or wide-web flexographic press, and utilize a control device that is also utilized by a product and packaging rotogravure or wide-web flexographic press. Stand-alone coating equipment is sometimes referred to as "off-line" coating equipment.

*Wide-web flexographic press* means a flexographic press capable of printing substrates greater than 18 inches in width.

*Work station* means a unit on a rotogravure or wide-web flexographic press where material is deposited onto a substrate.

(b) The symbols used in equations in this subpart are defined as follows:

(1)  $C_{ahi}$ =the monthly average, as-applied, organic HAP content of solids-containing material, i, expressed as a weight-fraction, kg/kg.

(2)  $C_{asi}$ =the monthly average, as applied, solids content, of solids-containing material, i, expressed as a weight-fraction, kg/kg.

(3)  $C_{hi}$ =the organic HAP content of ink or other solids-containing material, i, expressed as a weight-fraction, kg/kg.

(4)  $C_{hij}$ =the organic HAP content of solvent j, added to solids-containing material i, expressed as a weight-fraction, kg/kg.

(5)  $C_{hj}$ =the organic HAP content of solvent j, expressed as a weight-fraction, kg/kg.

(6)  $C_i$ =the organic volatile matter concentration in ppm, dry basis, of compound i in the vent gas, as determined by Method 25 or Method 25A.

(7)  $C_{si}$ =the solids content of ink or other material, i, expressed as a weight-fraction, kg/kg.

(8)  $C_{vi}$ =the volatile matter content of ink or other material, i, expressed as a weight-fraction, kg/kg.

(9) E=the organic volatile matter control efficiency of the control device, percent.

(10) F=the organic volatile matter capture efficiency of the capture system, percent.

(11)  $G_i$ =the mass fraction of each solids containing material, i, which was applied at 20 weight-percent or greater solids content, on an as-applied basis, kg/kg.

(12) H=the total monthly organic HAP applied, kg.

(13)  $H_a$ =the monthly allowable organic HAP emissions, kg.

(14)  $H_L$ =the monthly average, as-applied, organic HAP content of all solids-containing materials applied at less than 0.04 kg organic HAP per kg of material applied, kg/kg.

(15)  $H_s$ =the monthly average, as-applied, organic HAP to solids ratio, kg organic HAP/kg solids applied.

(16)  $H_{si}$ =the as-applied, organic HAP to solids ratio of material i.

(17) L=the mass organic HAP emission rate per mass of solids applied, kg/kg.

(18)  $M_{Bi}$ =the sum of the mass of solids-containing material, i, applied on intermittently-controllable work stations operating in bypass mode and the mass of solids-containing material, i, applied on never-controlled work stations, in a month, kg.

(19)  $M_{Bj}$ =the sum of the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied on intermittently-controllable work stations operating in bypass mode and the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied on never-controlled work stations, in a month, kg.

(20)  $M_{ci}$ =the sum of the mass of solids-containing material, i, applied on intermittently-controllable work stations operating in controlled mode and the mass of solids-containing material, i, applied on always-controlled work stations, in a month, kg.

(21)  $M_{cj}$ =the sum of the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied on intermittently-controllable work stations operating in controlled mode and the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied on always-controlled work stations in a month, kg.

(22)  $M_F$ =the total organic volatile matter mass flow rate, kg/h.

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(23)  $M_{fi}$ =the organic volatile matter mass flow rate at the inlet to the control device, kg/h.

(24)  $M_{fo}$ =the organic volatile matter mass flow rate at the outlet of the control device, kg/h.

(25)  $M_{hu}$ =the mass of organic HAP used in a month, kg.

(26)  $M_i$ =the mass of ink or other material, i, applied in a month, kg.

(27)  $M_{ij}$ =the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, added to solids-containing material, i, in a month, kg.

(28)  $M_j$ =the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, applied in a month, kg.

(29)  $M_{Lj}$ =the mass of solvent, thinner, reducer, diluent, or other non-solids-containing material, j, added to solids-containing materials which were applied at less than 20 weight-percent solids content, on an as-applied basis, in a month, kg.

(30)  $M_{vr}$ =the mass of volatile matter recovered in a month, kg.

(31)  $M_{vu}$ =the mass of volatile matter, including water, used in a month, kg.

(32)  $MW_i$ =the molecular weight of compound i in the vent gas, kg/kg-mol.

(33) n=the number of organic compounds in the vent gas.

(34) p=the number of different inks, coatings, varnishes, adhesives, primers, and other materials applied in a month.

(35) q=the number of different solvents, thinners, reducers, diluents, or other non-solids-containing materials applied in a month.

(36)  $Q_{sd}$ =the volumetric flow rate of gases entering or exiting the control device, as determined by Method 2, dscm/h.

(37) R=the overall organic HAP control efficiency, percent.

(38)  $R_e$ =the overall effective organic HAP control efficiency for publication rotogravure, percent.

(39)  $R_v$ =the organic volatile matter collection and recovery efficiency, percent.

(40) S=the mass organic HAP emission rate per mass of material applied, kg/kg.

(41) 0.0416=conversion factor for molar volume, kg-mol/m<sup>3</sup>(@ 293 K and 760 mmHg).

### § 63.823 Standards: General.

Table 1 to this subpart provides cross references to the 40 CFR part 63, subpart A, general provisions, indicating the applicability of the general provisions requirements to this subpart KK.

### § 63.824 Standards: Publication rotogravure printing.

(a) Each owner or operator of any publication rotogravure printing affected source that is subject to the requirements of this subpart shall comply

with these requirements on and after the compliance dates as specified in § 63.826 of this subpart.

(b) Each publication rotogravure affected source shall limit emissions of organic HAP to no more than eight percent of the total volatile matter used each month. The emission limitation may be achieved by overall control of at least 92 percent of organic HAP used, by substitution of non-HAP materials for organic HAP, or by a combination of capture and control technologies and substitution of materials. To demonstrate compliance, each owner or operator shall follow the procedure in paragraph (b)(1) of this section when emissions from the affected source are controlled by a solvent recovery device, the procedure in paragraph (b)(2) of this section when emissions from the affected source are controlled by an oxidizer, and the procedure in paragraph (b)(3) of this section when no control device is used.

(1) Each owner or operator using a solvent recovery device to control emissions shall demonstrate compliance by showing that the HAP emission limitation is achieved by following the procedures in either paragraph (b)(1)(i) or (b)(1)(ii) of this section:

(i) Perform a liquid-liquid material balance for each month as follows:

(A) Measure the mass of each ink, coating, varnish adhesive, primer, solvent, and other material used by the affected source during the month.

(B) Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent and other material used by the affected source during the month following the procedure in § 63.827(b)(1).

(C) Determine the volatile matter content, including water, of each ink, coating, varnish, adhesive, primer, solvent, and other material used by the affected source during the month following the procedure in § 63.827(c)(1).

(D) Install, calibrate, maintain and operate, according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device shall be initially certified by the manufacturer to be accurate to within  $\pm 2.0$  percent.

(E) Measure the amount of volatile matter recovered for the month.

(F) Calculate the overall effective organic HAP control efficiency ( $R_e$ ) for the month using Equation 1:

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For the purposes of this calculation, the mass fraction of organic HAP present in the recovered volatile matter is assumed to be equal to the mass fraction of organic HAP present in the volatile matter used.

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(G) The affected source is in compliance for the month, if  $R_e$  is at least 92 percent each month.

(ii) Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency as specified in paragraphs (b)(1)(ii)(A) through (b)(1)(ii)(E) of this section:

(A) Install continuous emission monitors to determine the total organic volatile matter mass flow rate (e.g., by determining the concentration of the vent gas in grams per cubic meter, and the volumetric flow rate in cubic meters per second, such that the total organic volatile matter mass flow rate in grams per second can be calculated and summed) at both the inlet to and the outlet from the control device, such that the percent control efficiency (E) of the control device can be calculated for each month.

(B) Determine the percent capture efficiency (F) of the capture system according to § 63.827(e).

(C) Calculate the overall effective organic HAP control efficiency ( $R_e$ ) achieved for each month using Equation 2.

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(D) Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameter established in accordance with § 63.828(a)(5) whenever a publication rotogravure printing press is operated.

(E) The affected source is in compliance with the requirement for the month if  $R_e$  is at least 92 percent, and the capture device is operated at an average value greater than, or less than (as appropriate) the operating parameter value established in accordance with § 63.828(a)(5) for each three-hour period.

(2) Each owner or operator using an oxidizer to control emissions shall demonstrate compliance by showing that the HAP emission limitation is achieved by following the procedure in either paragraph (b)(2)(i) or (b)(2)(ii) of this section:

(i) Demonstrate initial compliance through performance tests and continuing compliance through continuous monitoring as follows:

(A) Determine the oxidizer destruction efficiency (E) using the procedure in § 63.827(d).

(B) Determine the capture efficiency (F) using the procedure in § 63.827(e).

(C) [Reserved]

(D) Calculate the overall effective organic HAP control efficiency ( $R_e$ ) achieved using Equation 2.

(E) The affected source is in initial compliance if  $R_e$  is at least 92 percent. Demonstration of continuing compliance is achieved by continuous monitoring of an appropriate oxidizer operating parameter in accordance with § 63.828(a)(4), and by continuous monitoring of an appropriate capture system monitoring parameter in accordance

with § 63.828(a)(5). The affected source is in continuing compliance if the capture device is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.828(a)(5), and

(1) if an oxidizer other than a catalytic oxidizer is used, the average combustion temperature for all three-hour periods is greater than or equal to the average combustion temperature established under § 63.827(d), or

(2) if a catalytic oxidizer is used, the average catalyst bed inlet temperature for all three-hour periods is greater than or equal to the average catalyst bed inlet temperature established in accordance with § 63.827(d).

(ii) Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency in accordance with the requirements of paragraph (b)(1)(ii) of this section.

(3) To demonstrate compliance without the use of a control device, each owner or operator shall compare the mass of organic HAP used to the mass of volatile matter used each month, as specified in paragraphs (b)(3)(i) through (b)(3)(iv) of this section:

(i) Measure the mass of each ink, coating, varnish adhesive, primer, solvent, and other material used in the affected source during the month,

(ii) Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, and other material used during the month following the procedure in § 63.827(b)(1), and

(iii) Determine the volatile matter content, including water, of each ink, coating, varnish, adhesive, primer, solvent, and other material used during the month following the procedure in § 63.827(c)(1).

(iv) The affected source is in compliance for the month if the mass of organic HAP used does not exceed eight percent of the mass of volatile matter used.

### **§ 63.825 Standards: Product and packaging rotogravure and wide-web flexographic printing.**

(a) Each owner or operator of any product and packaging rotogravure or wide-web flexographic printing affected source that is subject to the requirements of this subpart shall comply with these requirements on and after the compliance dates as specified in § 63.826 of this subpart.

(b) Each product and packaging rotogravure or wide-web flexographic printing affected source shall limit emissions to no more than five percent of the organic HAP applied for the month; or to no more than four percent of the mass of inks, coatings, varnishes, adhesives, primers, solvents,

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reducers, thinners, and other materials applied for the month; or to no more than 20 percent of the mass of solids applied for the month; or to a calculated equivalent allowable mass based on the organic HAP and solids contents of the inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, and other materials applied for the month. The owner or operator of each product and packaging rotogravure or wide-web flexographic printing affected source shall demonstrate compliance with this standard by following one of the procedures in paragraphs (b)(1) through (b)(10) of this section:

(1) Demonstrate that each ink, coating, varnish, adhesive, primer, solvent, diluent, reducer, thinner, and other material applied during the month contains no more than 0.04 weight-fraction organic HAP, on an as-purchased basis, as determined in accordance with § 63.827(b)(2).

(2) Demonstrate that each ink, coating, varnish, adhesive, primer, and other solids-containing material applied during the month contains no more than 0.04 weight-fraction organic HAP, on a monthly average as-applied basis as determined in accordance with paragraphs (b)(2)(i)–(ii) of this section. The owner or operator shall calculate the as-applied HAP content of materials which are reduced, thinned, or diluted prior to application, as follows:

(i) Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, diluent, reducer, thinner, and other material applied on an as-purchased basis in accordance with § 63.827(b)(2).

(ii) Calculate the monthly average as-applied organic HAP content,  $C_{ahi}$  of each ink, coating, varnish, adhesive, primer, and other solids-containing material using Equation 3.

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(3)(i) Demonstrate that each ink, coating, varnish, adhesive, primer, and other solids-containing material applied, either

(A) Contains no more than 0.04 weight-fraction organic HAP on a monthly average as-applied basis, or

(B) Contains no more than 0.20 kg of organic HAP per kg of solids applied, on a monthly average as-applied basis.

(ii) The owner or operator may demonstrate compliance in accordance with paragraphs (b)(3)(ii) (A)–(C) of this section.

(A) Use the procedures of paragraph (b)(2) of this section to determine which materials meet the requirements of paragraph (b)(3)(i)(A) of this section,

(B) Determine the as-applied solids content following the procedure in § 63.827(c)(2) of all materials which do not meet the requirements of paragraph (b)(3)(i)(A) of this section. The owner or

operator may calculate the monthly average as-applied solids content of materials which are reduced, thinned, or diluted prior to application, using Equation 4, and

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(C) Calculate the as-applied organic HAP to solids ratio,  $H_{si}$ , for all materials which do not meet the requirements of paragraph (b)(3)(i)(A) of this section, using Equation 5.

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(4) Demonstrate that the monthly average as-applied organic HAP content,  $H_L$ , of all materials applied is less than 0.04 kg HAP per kg of material applied, as determined by Equation 6.

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(5) Demonstrate that the monthly average as-applied organic HAP content on the basis of solids applied,  $H_s$ , is less than 0.20 kg HAP per kg solids applied as determined by Equation 7.

ER30MY96.006

(6) Demonstrate that the total monthly organic HAP applied,  $H$ , as determined by Equation 8, is less than the calculated equivalent allowable organic HAP,  $H_a$ , as determined by paragraph (e) of this section.

ER30MY96.007

(7) Operate a capture system and control device and demonstrate an overall organic HAP control efficiency of at least 95 percent for each month. If the affected source operates more than one capture system or more than one control device, and has only always-controlled work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of either paragraph (f) or (h) of this section. If the affected source operates one or more never-controlled work stations or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of paragraph (f) of this section. Otherwise, the owner or operator shall demonstrate compliance in accordance with the procedure in paragraph (c) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (d) of this section when emissions are controlled by an oxidizer.

(8) Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.20 kg organic HAP emitted per kg solids applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of paragraph (f) of this section. Otherwise, the owner or operator shall demonstrate

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compliance following the procedure in paragraph (c) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (d) of this section when emissions are controlled by an oxidizer.

(9) Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.04 kg organic HAP emitted per kg material applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of paragraph (f) of this section. Otherwise, the owner or operator shall demonstrate compliance following the procedure in paragraph (c) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (d) of this section when emissions are controlled by an oxidizer.

(10) Operate a capture system and control device and limit the monthly organic HAP emissions to less than the allowable emissions as calculated in accordance with paragraph (e) of this section. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of paragraph (f) of this section. Otherwise, the owner or operator shall demonstrate compliance following the procedure in paragraph (c) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (d) of this section when emissions are controlled by an oxidizer.

(c) To demonstrate compliance with the overall organic HAP control efficiency requirement in § 63.825(b)(7) or the organic HAP emissions limitation requirements in § 63.825(b)(8)–(10), each owner or operator using a solvent recovery device to control emissions shall show compliance by following the procedures in either paragraph (c)(1) or (c)(2) of this section:

(1) Perform a liquid-liquid material balance for each and every month as follows:

(i) Measure the mass of each ink, coating, varnish, adhesive, primer, solvent and other material applied on the press or group of presses controlled by a common solvent recovery device during the month.

(ii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on mate-

rial applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(b)(2).

(iii) Determine the volatile matter content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(c)(2).

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied or emission of less than the calculated allowable organic HAP, determine the solids content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(c)(2).

(v) Install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device shall be initially certified by the manufacturer to be accurate to within  $\pm 2.0$  percent.

(vi) Measure the amount of volatile matter recovered for the month.

(vii) Calculate the volatile matter collection and recovery efficiency,  $R_v$ , using Equation 9.

ER30MY96.008

(viii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, calculate the organic HAP emitted during the month,  $H$ , using Equation 10.

ER30MY96.009

(ix) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, calculate the organic HAP emission rate based on solids applied,  $L$ , using Equation 11.

ER30MY96.010

(x) If demonstrating compliance on the basis of organic HAP emission rate based on materials applied, calculate the organic HAP emission rate based on material applied,  $S$ , using Equation 12.

ER30MY96.011

(xi) The affected source is in compliance if

(A) The organic volatile matter collection and recovery efficiency,  $R_v$ , is 95 percent or greater, or

(B) The organic HAP emission rate based on solids applied,  $L$ , is 0.20 kg organic HAP per kg solids applied or less, or

(C) the organic HAP emission rate based on material applied,  $S$ , is 0.04 kg organic HAP per kg material applied or less, or

(D) the organic HAP emitted during the month,  $H$ , is less than the calculated allowable organic HAP,  $H_a$ , as determined using paragraph (e) of this section.

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(2) Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency following the procedures in paragraphs (c)(2)(i) through (c)(2)(xi) of this section:

(i) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on materials applied, or emission of less than the calculated allowable organic HAP, measure the mass of each ink, coating, varnish, adhesive, primer, solvent, and other material applied on the press or group of presses controlled by a common control device during the month.

(ii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(b)(2).

(iii) Install continuous emission monitors to determine the total organic volatile matter mass flow rate (e.g., by determining the concentration of the vent gas in grams per cubic meter, and the volumetric flow rate in cubic meters per second, such that the total organic volatile matter mass flow rate in grams per second can be calculated and summed) at both the inlet to and the outlet from the control device, such that the percent control efficiency (E) of the control device can be calculated for each month.

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied or emission of less than the calculated allowable organic HAP, determine the solids content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(c)(2).

(v) Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameter established in accordance with § 63.828(a)(5) whenever a product and packaging rotogravure or wide-web flexographic printing press is operated.

(vi) Determine the capture efficiency (F) in accordance with § 63.827(e)–(f).

(vii) Calculate the overall organic HAP control efficiency, (R), achieved for each month using Equation 13.

ER30MY96.012

(viii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, calculate the organic HAP

emitted during the month, H, for each month using Equation 14.

ER30MY96.013

(ix) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, calculate the organic HAP emission rate based on solids applied, L, using Equation 15.

ER30MY96.014

(x) If demonstrating compliance on the basis of organic HAP emission rate based on materials applied, calculate the organic HAP emission rate based on material applied, S, using Equation 16.

ER30MY96.015

(xi) The affected source is in compliance if the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.828(a)(5) for each three hour period, and

(A) The organic volatile matter collection and recovery efficiency,  $R_v$ , is 95 percent or greater, or

(B) The organic HAP emission rate based on solids applied, L, is 0.20 kg organic HAP per kg solids applied or less, or

(C) The organic HAP emission rate based on material applied, S, is 0.04 kg organic HAP per kg material applied or less, or

(D) The organic HAP emitted during the month, H, is less than the calculated allowable organic HAP,  $H_a$ , as determined using paragraph (e) of this section.

(d) To demonstrate compliance with the overall organic HAP control efficiency requirement in § 63.825(b)(7) or the overall organic HAP emission rate limitation requirements in § 63.825(b)(8)–(10), each owner or operator using an oxidizer to control emissions shall show compliance by following the procedures in either paragraph (d)(1) or (d)(2) of this section:

(1) demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters following the procedures in paragraph (d)(1)(i) through (d)(1)(xi) of this section:

(i) Determine the oxidizer destruction efficiency (E) using the procedure in § 63.827(d).

(ii) Determine the capture system capture efficiency (F) in accordance with § 63.827(e)–(f).

(iii) Calculate the overall organic HAP control efficiency, (R), achieved using Equation 13.

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on materials applied or emission of less than the calculated allowable organic HAP, measure the mass of each ink, coating, varnish, adhesive, primer, solvent, and other material applied on the press or

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group of presses controlled by a common solvent recovery device during the month.

(v) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(b)(2).

(vi) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied or emission of less than the calculated allowable organic HAP, determine the solids content of each ink, coating, varnish, adhesive, primer, solvent, and other material applied during the month following the procedure in § 63.827(c)(2).

(vii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, organic HAP emission rate based on material applied or emission of less than the calculated allowable organic HAP, calculate the organic HAP emitted during the month,  $H$ , for each month using Equation 14.

(viii) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied, calculate the organic HAP emission rate based on solids applied,  $L$ , for each month using Equation 15.

(ix) If demonstrating compliance on the basis of organic HAP emission rate based on materials applied, calculate the organic HAP emission rate based on material applied,  $S$ , using Equation 16.

(x) Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameters established in accordance with § 63.828(a)(4)–(5) whenever a product and packaging rotogravure or wide-web flexographic press is operating.

(xi) The affected source is in compliance, if the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with § 63.828(a)(4) for each three-hour period, and the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.828(a)(5) for each three hour period, and

(A) The overall organic HAP control efficiency,  $R$ , is 95 percent or greater, or

(B) The organic HAP emission rate based on solids applied,  $L$ , is 0.20 kg organic HAP per kg solids applied or less, or

(C) The organic HAP emission rate based on material applied,  $S$ , is 0.04 kg organic HAP per kg material applied or less, or

(D) The organic HAP emitted during the month,  $H$ , is less than the calculated allowable organic HAP,  $H_a$ , as determined using paragraph (e) of this section.

(2) Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency. Compliance shall be demonstrated in accordance with the requirements of paragraph (c)(2) of this section.

(e) Owners or operators may calculate the monthly allowable HAP emissions,  $H_a$ , for demonstrating compliance in accordance with paragraph (b)(6), (c)(1)(xi)(D), (c)(2)(xi)(D), or (d)(1)(xi)(D) of this section as follows:

(1) Determine the as-purchased mass of each ink, coating, varnish, adhesive, primer, and other solids-containing material applied each month,  $M_i$ .

(2) Determine the as-purchased solids content of each ink, coating, varnish, adhesive, primer, and other solids-containing material applied each month, in accordance with § 63.827(c)(2),  $C_{si}$ .

(3) Determine the as-purchased mass fraction of each ink, coating, varnish, adhesive, primer, and other solids-containing material which was applied at 20 weight-percent or greater solids content, on an as-applied basis,  $G_i$ .

(4) Determine the total mass of each solvent, diluent, thinner, or reducer added to materials which were applied at less than 20 weight-percent solids content, on an as-applied basis, each month,  $M_{Lj}$ .

(5) Calculate the monthly allowable HAP emissions,  $H_a$ , using Equation 17.

ER30MY96.016

(f) Owners or operators of product and packaging rotogravure or wide-web flexographic printing presses shall demonstrate compliance according to the procedures in paragraphs (f)(1) through (f)(7) of this section if the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations.

(1) The owner or operator of each solvent recovery system used to control one or more product and packaging rotogravure or wide-web flexographic presses for which the owner or operator chooses to comply by means of a liquid-liquid mass balance shall determine the organic HAP emissions for those presses controlled by that solvent recovery system either

(i) in accordance with paragraphs (c)(1)(i)–(iii) and (c)(1)(v)–(viii) of this section if the presses controlled by that solvent recovery system have only always-controlled work stations, or

(ii) in accordance with paragraphs (c)(1)(ii)–(iii), (c)(1)(v)–(vi), and (g) of this section if the presses controlled by that solvent recovery system

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have one or more never-controlled or intermittently-controllable work stations.

(2) The owner or operator of each solvent recovery system used to control one or more product and packaging rotogravure or wide-web flexographic presses, for which the owner or operator chooses to comply by means of an initial test of capture efficiency, continuous emission monitoring of the control device, and continuous monitoring of a capture system operating parameter, shall

(i) For each capture system delivering emissions to that solvent recovery system, monitor an operating parameter established in accordance with § 63.828(a)(5) to assure capture system efficiency, and

(ii) Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that solvent recovery system either

(A) In accordance with paragraphs (c)(2)(i)–(iii) and (c)(2)(v)–(viii) of this section if the presses served by that capture system have only always-controlled work stations, or

(B) In accordance with paragraphs (c)(2)(ii)–(iii), (c)(2)(v)–(vii), and (g) of this section if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

(3) The owner or operator of each oxidizer used to control emissions from one or more product and packaging rotogravure or wide-web flexographic presses choosing to demonstrate compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters, shall

(i) Monitor an operating parameter established in accordance with § 63.828(a)(4) to assure control device efficiency, and

(ii) For each capture system delivering emissions to that oxidizer, monitor an operating parameter established in accordance with § 63.828(a)(5) to assure capture efficiency, and

(iii) Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that oxidizer either

(A) In accordance with paragraphs (d)(1)(i)–(v) and (d)(1)(vii) of this section if the presses served by that capture system have only always-controlled work stations, or

(B) In accordance with paragraphs (d)(1)(i)–(iii), (d)(1)(v), and (g) of this section if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

(4) The owner or operator of each oxidizer used to control emissions from one or more product and packaging rotogravure or wide-web flexographic

presses choosing to demonstrate compliance through an initial capture efficiency test, continuous emission monitoring of the control device and continuous monitoring of a capture system operating parameter, shall

(i) For each capture system delivering emissions to that oxidizer, monitor an operating parameter established in accordance with § 63.828(a)(5) to assure capture efficiency, and

(ii) Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that oxidizer either

(A) In accordance with paragraphs (c)(2)(i)–(iii) and (c)(2)(v)–(viii) of this section if the presses served by that capture system have only always-controlled work stations, or

(B) In accordance with paragraphs (c)(2)(ii)–(iii), (c)(2)(v)–(vii), and (g) of this section if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

(5) The owner or operator of one or more uncontrolled product and packaging rotogravure or wide-web flexographic printing presses shall determine the organic HAP applied on those presses using Equation 8. The organic HAP emitted from an uncontrolled press is equal to the organic HAP applied on that press.

(6) If demonstrating compliance on the basis of organic HAP emission rate based on solids applied or emission of less than the calculated allowable organic HAP, the owner or operator shall determine the solids content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in § 63.827(c)(2).

(7) The owner or operator shall determine the organic HAP emissions for the affected source for the month by summing all organic HAP emissions calculated according to paragraphs (f)(1), (f)(2)(ii), (f)(3)(iii), (f)(4)(ii), and (f)(5) of this section. The affected source is in compliance for the month, if all operating parameters required to be monitored under paragraphs (f)(2)–(4) of this section were maintained at the appropriate values, and

(i) The total mass of organic HAP emitted by the affected source was not more than four percent of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, diluents, reducers, thinners and other materials applied by the affected source, or

(ii) The total mass of organic HAP emitted by the affected source was not more than 20 percent of the total mass of solids applied by the affected source, or

(iii) The total mass of organic HAP emitted by the affected source was not more than the equivalent allowable organic HAP emissions for the af-

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affected source,  $H_a$ , calculated in accordance with paragraph (e) of this section, or

(iv) The total mass of organic HAP emitted by the affected source was not more than five percent of the total mass of organic HAP applied by the affected source. The total mass of organic HAP applied by the affected source in the month shall be determined by the owner or operator using Equation 8.

(g) Owners or operators determining organic HAP emissions from a press or group of presses having one or more never-controlled or intermittently-controllable work stations and using the procedures specified in paragraphs (f)(1)(ii), (f)(2)(ii)(B), (f)(3)(iii)(B), or (f)(4)(ii)(B) of this section shall for that press or group of presses:

(1) Determine the sum of the mass of all inks, coatings, varnishes, adhesives, primers, and other solids-containing materials which are applied on intermittently-controllable work stations in bypass mode and the mass of all inks, coatings, varnishes, adhesives, primers, and other solids-containing materials which are applied on never-controlled work stations during the month,  $M_{Bi}$ .

(2) Determine the sum of the mass of all solvents, reducers, thinners, and other diluents which are applied on intermittently-controllable work stations in bypass mode and the mass of all solvents, reducers, thinners, and other diluents which are applied on never-controlled work stations during the month,  $M_{Bj}$ .

(3) Determine the sum of the mass of all inks, coatings, varnishes, adhesives, primers, and other solids-containing materials which are applied on intermittently-controllable work stations in controlled mode and the mass of all inks, coatings, varnishes, adhesives, primers, and other solids-containing materials which are applied on always-controlled work stations during the month,  $M_{Bj}$ .

(4) Determine the sum of the mass of all solvents, reducers, thinners, and other diluents which are applied on intermittently-controllable work stations in controlled mode and the mass of all solvents, reducers, thinners, and other diluents which are applied on always-controlled work stations during the month,  $M_{Cj}$ .

(5) For each press or group of presses for which the owner or operator uses the provisions of paragraph (f)(1)(ii) of this section, the owner or operator shall calculate the organic HAP emitted during the month using Equation 18.

ER30MY96.017

(6) For each press or group of presses for which the owner or operator uses the provisions of paragraphs (f)(2)(ii)(B), (f)(3)(iii)(B), or (f)(4)(ii)(B) of this section, the owner or operator shall calculate the organic HAP emitted during the month using Equation (19).

ER30MY96.018

(h) If the affected source operates more than one capture system or more than one control device, and has no never-controlled work stations and no intermittently-controllable work stations, then the affected source is in compliance with the 95 percent overall organic HAP control efficiency requirement for the month if for each press or group of presses controlled by a common control device:

(1) The volatile matter collection and recovery efficiency,  $R_v$ , as determined by paragraphs (c)(1)(i), (c)(1)(iii), and (c)(1)(v)–(vii) of this section is equal to or greater than 95 percent, or

(2) The overall organic HAP control efficiency as determined by paragraphs (c)(2)(iii) and (c)(2)(v)–(vii) of this section for each press or group of presses served by that control device and a common capture system is equal to or greater than 95 percent and the average capture system operating parameter value for each capture system serving that control device is greater than or less than (as appropriate) the operating parameter value established for that capture system in accordance with § 63.828(a)(5) for each three hour period, or

(3) The overall organic HAP control efficiency as determined by paragraphs (d)(1)(i)–(iii) and (d)(1)(x) of this section for each press or group of presses served by that control device and a common capture system is equal to or greater than 95 percent, the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with § 63.828(a)(4) for each three hour period, and the average capture system operating parameter value for each capture system serving that control device is greater than or less than (as appropriate) the operating parameter value established for that capture system in accordance with § 63.828(a)(5) for each three hour period.

## § 63.826 Compliance dates.

(a) The compliance date for an owner or operator of an existing affected source subject to the provisions of this subpart is May 30, 1999.

(b) The compliance date for an owner or operator of a new affected source subject to the provisions of this subpart is immediately upon start-up of the affected source, or May 30, 1996, whichever is later.

(c) Affected sources which have undergone reconstruction are subject to the requirements for new affected sources. The costs associated with the purchase and installation of air pollution control equipment are not considered in determining whether the affected source has been reconstructed. Additionally, the costs of retrofitting and replacement of equipment that is installed specifically to comply with this subpart are not considered reconstruction costs.

**§ 63.827 Performance test methods.**

(a) An owner or operator using a control device to comply with the requirements of §§ 63.824–63.825 is not required to conduct an initial performance test to demonstrate compliance if one or more of the criteria in paragraphs (a)(1) through (a)(3) of this section are met:

(1) A control device that is in operation prior to May 30, 1996, does not need to be tested if

(i) It is equipped with continuous emission monitors for determining inlet and outlet total organic volatile matter concentration, and capture efficiency has been determined in accordance with the requirements of this subpart, such that an overall HAP control efficiency can be calculated, and

(ii) The continuous emission monitors are used to demonstrate continuous compliance in accordance with § 63.828, or

(2) The owner or operator has met the requirements of either § 63.7(e)(2)(iv) or § 63.7(h), or

(3) The control device is a solvent recovery system and the owner or operator chooses to comply by means of a monthly liquid-liquid material balance.

(b) Determination of the organic HAP content of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, diluents, and other materials for the purpose of meeting the requirements of § 63.824 shall be conducted according to paragraph (b)(1) of this section. Determination of the organic HAP content of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers, diluents, and other materials for the purpose of meeting the requirements of § 63.825 shall be conducted according to paragraph (b)(2) of this section.

(1) Each owner or operator of a publication rotogravure facility shall determine the organic HAP weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, and other material used in a publication rotogravure affected source by following one of the procedures in paragraphs (b)(1)(i) through (b)(1)(iii) of this section:

(i) The owner or operator may test the material in accordance with Method 311 of appendix A of this part 63. The Method 311 determination may be performed by the manufacturer of the material and the results provided to the owner or operator. If these values cannot be determined using Method 311, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator. The recovery efficiency of the technique must be determined for all of the target organic HAP and a correction factor, if necessary, must be determined and applied.

(ii) The owner or operator may determine the volatile matter content of the material in accordance with § 63.827(c)(1) and use this value for the organic HAP content for all compliance purposes.

(iii) The owner or operator may, except as noted in paragraph (b)(1)(iv) of this section, rely on formulation data provided by the manufacturer of the material on a CPDS if

(A) The manufacturer has included in the organic HAP content determination all HAP present at a level greater than 0.1 percent in any raw material used, weighted by the mass fraction of each raw material used in the material, and

(B) The manufacturer has determined the HAP content of each raw material present in the formulation by Method 311 of appendix A of this part 63, or by an alternate method approved by the Administrator, or by reliance on a CPDS from a raw material supplier prepared in accordance with § 63.827(b)(1)(iii)(A).

(iv) In the event of any inconsistency between the Method 311 of appendix A of this part 63 test data and formulation data, that is, if the Method 311 test value is higher, the Method 311 test data shall govern, unless after consultation, an owner or operator demonstrates to the satisfaction of the enforcement authority that the formulation data are correct.

(2) Each owner or operator of a product and packaging rotogravure or wide-web flexographic printing facility shall determine the organic HAP weight fraction of each ink, coating, varnish, adhesive, primer, solvent, thinner, reducer, diluent, and other material applied by following one of the procedures in paragraphs (b)(2)(i) through (b)(2)(iii) of this section:

(i) The owner or operator may test the material in accordance with Method 311 of appendix A of this part 63. The Method 311 determination may be performed by the manufacturer of the material and the results provided to the owner or operator. If these values cannot be determined using Method 311, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator. The recovery efficiency of the technique must be determined for all of the target organic HAP and a correction factor, if necessary, must be determined and applied.

(ii) The owner or operator may determine the volatile matter content of the material in accordance with § 63.827(c)(2) and use this value for the organic HAP content for all compliance purposes.

(iii) The owner or operator may, except as noted in paragraph (b)(2)(iv) of this section, rely on formulation data provided by the manufacturer of the material on a CPDS if

(A) The manufacturer has included in the organic HAP content determination, all organic HAP present at a level greater than 0.1 percent in any raw material used, weighted by the mass fraction of each raw material used in the material, and

(B) The manufacturer has determined the organic HAP content of each raw material present in

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the formulation by Method 311 of appendix A of this part 63, or, by an alternate method approved by the Administrator, or, by reliance on a CPDS from a raw material supplier prepared in accordance with § 63.827(b)(2)(iii)(A).

(iv) In the event of any inconsistency between the Method 311 of appendix A of this part 63 test data and a facility's formulation data, that is, if the Method 311 test value is higher, the Method 311 test data shall govern, unless after consultation, an owner or operator demonstrates to the satisfaction of the enforcement authority that the formulation data are correct.

(c) Determination by the owner or operator of the volatile matter content of inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, diluents, and other materials used for the purpose of meeting the requirements of § 63.824 shall be conducted according to paragraph (c)(1) of this section. Determination by the owner or operator of the volatile matter and solids content of inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, diluents, and other materials applied for the purpose of meeting the requirements of § 63.825 shall be conducted according to paragraph (c)(2) of this section.

(1) Each owner or operator of a publication rotogravure facility shall determine the volatile matter weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, reducer, thinner, diluent, and other material used using Method 24A of 40 CFR part 60, appendix A. The Method 24A determination may be performed by the manufacturer of the material and the results provided to the owner or operator. If these values cannot be determined using Method 24A, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator. The owner or operator may rely on formulation data, subject to the provisions of paragraph (c)(3) of this section.

(2) Each owner or operator of a product and packaging rotogravure or wide-web flexographic printing facility shall determine the volatile matter and solids weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, reducer, thinner, diluent, and other material applied using Method 24 of 40 CFR part 60, appendix A. The Method 24 determination may be performed by the manufacturer of the material and the results provided to the owner or operator. If these values cannot be determined using Method 24, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator. The owner or operator may rely on formulation data, subject to the provisions of paragraph (c)(3) of this section.

(3) Owners or operators may determine the volatile matter content of materials based on for-

mulation data, and may rely on volatile matter content data provided by material suppliers. In the event of any inconsistency between the formulation data and the results of Test Methods 24 or 24A of 40 CFR part 60, appendix A, the applicable test method shall govern, unless after consultation, the owner or operator can demonstrate to the satisfaction of the enforcement agency that the formulation data are correct.

(d) A performance test of a control device to determine destruction efficiency for the purpose of meeting the requirements of §§ 63.824–63.825 shall be conducted by the owner or operator in accordance with the following:

(1) An initial performance test to establish the destruction efficiency of an oxidizer and the associated combustion zone temperature for a thermal oxidizer and the associated catalyst bed inlet temperature for a catalytic oxidizer shall be conducted and the data reduced in accordance with the following reference methods and procedures:

(i) Method 1 or 1A of 40 CFR part 60, appendix A is used for sample and velocity traverses to determine sampling locations.

(ii) Method 2, 2A, 2C, or 2D of 40 CFR part 60, appendix A is used to determine gas volumetric flow rate.

(iii) Method 3 of 40 CFR part 60, appendix A is used for gas analysis to determine dry molecular weight.

(iv) Method 4 of 40 CFR part 60, appendix A is used to determine stack gas moisture.

(v) Methods 2, 2A, 3, and 4 of 40 CFR part 60, appendix A shall be performed, as applicable, at least twice during each test period.

(vi) Method 25 of 40 CFR part 60, Appendix A, shall be used to determine organic volatile matter concentration, except as provided in paragraphs (d)(1)(vi)(A)–(C) of this section. The owner or operator shall submit notice of the intended test method to the Administrator for approval along with notice of the performance test required under § 63.7(c). The owner or operator may use Method 25A of 40 CFR part 60, appendix A, if

(A) An exhaust gas organic volatile matter concentration of 50 parts per million by volume (ppmv) or less is required to comply with the standards of §§ 63.824–63.825, or

(B) The organic volatile matter concentration at the inlet to the control system and the required level of control are such to result in exhaust gas organic volatile matter concentrations of 50 ppmv or less, or

(C) Because of the high efficiency of the control device, the anticipated organic volatile matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.

(vii) Each performance test shall consist of three separate runs; each run conducted for at least one

hour under the conditions that exist when the affected source is operating under normal operating conditions. For the purpose of determining organic volatile matter concentrations and mass flow rates, the average of results of all runs shall apply.

(viii) Organic volatile matter mass flow rates shall be determined using Equation 20:

ER30MY96.019

(ix) Emission control device efficiency shall be determined using Equation 21:

ER30MY96.020

(2) The owner or operator shall record such process information as may be necessary to determine the conditions of the performance test. Operations during periods of start-up, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.

(3) For the purpose of determining the value of the oxidizer operating parameter that will demonstrate continuing compliance, the time-weighted average of the values recorded during the performance test shall be computed. For an oxidizer other than catalytic oxidizer, the owner or operator shall establish as the operating parameter the minimum combustion temperature. For a catalytic oxidizer, the owner or operator shall establish as the operating parameter the minimum gas temperature upstream of the catalyst bed. These minimum temperatures are the operating parameter values that demonstrate continuing compliance with the requirements of §§ 63.824–63.825.

(e) A performance test to determine the capture efficiency of each capture system venting organic emissions to a control device for the purpose of meeting the requirements of §§ 63.824(b)(1)(ii), 63.824(b)(2), 63.825(c)(2), 63.825(d)(1)–(2), 63.825(f)(2)–(4), or 63.825(h)(2)–(3) shall be conducted by the owner or operator in accordance with the following:

(1) For permanent total enclosures, capture efficiency shall be assumed as 100 percent. Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure as found in appendix B to § 52.741 of part 52 of this chapter shall be used to confirm that an enclosure meets the requirements for permanent total enclosure.

(2) For temporary total enclosures, the capture efficiency shall be determined according to the protocol specified in § 52.741(a)(4)(iii)(B) of part 52 of this chapter. The owner or operator may exclude never-controlled work stations from such capture efficiency determinations.

(f) As an alternative to the procedures specified in § 63.827(e) an owner or operator required to conduct a capture efficiency test may use any capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective (DQO) or the Lower Confidence Limit (LCL) approach as described in Appendix A of this sub-

part. The owner or operator may exclude never-controlled work stations from such capture efficiency determinations.

### § 63.828 Monitoring requirements.

(a) Following the date on which the initial performance test of a control device is completed, to demonstrate continuing compliance with the standard, the owner or operator shall monitor and inspect each control device required to comply with §§ 63.824–63.825 to ensure proper operation and maintenance by implementing the applicable requirements in paragraph (a)(1) through (a)(5) of this section.

(1) Owners or operators of product and packaging rotogravure or wide-web flexographic presses with intermittently-controllable work stations shall follow one of the procedures in paragraphs (a)(1)(i) through (a)(1)(iv) of this section for each dryer associated with such a work station:

(i) Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. The time and flow control position must be recorded at least once per hour, as well as every time the flow direction is changed. The flow control position indicator shall be installed at the entrance to any bypass line that could divert the exhaust stream away from the control device to the atmosphere.

(ii) Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration; a visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve or damper is maintained in the closed position and the exhaust stream is not diverted through the bypass line.

(iii) Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position. The monitoring system shall be inspected at least once every month to ensure that it is functioning properly.

(iv) Use an automatic shutdown system in which the press is stopped when flow is diverted away from the control device to any bypass line. The automatic system shall be inspected at least once every month to ensure that it is functioning properly.

(2) Compliance monitoring shall be subject to the provisions of paragraphs (a)(2)(i) and (a)(2)(ii) of this section, as applicable.

(i) All continuous emission monitors shall comply with performance specifications (PS) 8 or 9 of 40 CFR part 60, appendix B, as appropriate. The requirements of appendix F of 40 CFR part 60 shall also be followed. In conducting the quarterly

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audits required by appendix F, owners or operators must challenge the monitors with compounds representative of the gaseous emission stream being controlled.

(ii) All temperature monitoring equipment shall be installed, calibrated, maintained, and operated according to manufacturers specifications. The calibration of the chart recorder, data logger, or temperature indicator shall be verified every three months; or the chart recorder, data logger, or temperature indicator shall be replaced. The replacement shall be done either if the owner or operator chooses not to perform the calibration, or if the equipment cannot be calibrated properly.

(3) An owner or operator complying with §§ 63.824–63.825 through continuous emission monitoring of a control device shall install, calibrate, operate, and maintain continuous emission monitors to measure the total organic volatile matter concentration at both the control device inlet and the outlet.

(4) An owner or operator complying with the requirements of §§ 63.824–63.825 through the use of an oxidizer and demonstrating continuous compliance through monitoring of an oxidizer operating parameter shall:

(i) For an oxidizer other than a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of  $\pm 1$  percent of the temperature being monitored in  $^{\circ}\text{C}$  or  $\pm 1$   $^{\circ}\text{C}$ , whichever is greater. The thermocouple or temperature sensor shall be installed in the combustion chamber at a location in the combustion zone.

(ii) For a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature with an accuracy of  $\pm 1$  percent of the temperature being monitored in  $^{\circ}\text{C}$  or  $\pm 1$   $^{\circ}\text{C}$ , whichever is greater. The thermocouple or temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed inlet.

(5) An owner or operator complying with the requirements of §§ 63.824–63.825 through the use of a control device and demonstrating continuous compliance by monitoring an operating parameter to ensure that the capture efficiency measured during the initial compliance test is maintained, shall:

(i) Submit to the Administrator with the compliance status report required by § 63.9(h) of the General Provisions, a plan that

(A) Identifies the operating parameter to be monitored to ensure that the capture efficiency measured during the initial compliance test is maintained,

(B) Discusses why this parameter is appropriate for demonstrating ongoing compliance, and

(C) Identifies the specific monitoring procedures;

(ii) Set the operating parameter value, or range of values, that demonstrate compliance with §§ 63.824–63.825, and

(iii) Conduct monitoring in accordance with the plan submitted to the Administrator unless comments received from the Administrator require an alternate monitoring scheme.

(b) Any excursion from the required operating parameters which are monitored in accordance with paragraphs (a)(4) and (a)(5) of this section, unless otherwise excused, shall be considered a violation of the emission standard.

### § 63.829 Recordkeeping requirements.

(a) The recordkeeping provisions of 40 CFR part 63 subpart A of this part that apply and those that do not apply to owners and operators of affected sources subject to this subpart are listed in Table 1 of this subpart.

(b) Each owner or operator of an affected source subject to this subpart shall maintain the records specified in paragraphs (b)(1) through (b)(3) of this section on a monthly basis in accordance with the requirements of § 63.10(b)(1) of this part:

(1) Records specified in § 63.10(b)(2) of this part, of all measurements needed to demonstrate compliance with this standard, such as continuous emission monitor data, control device and capture system operating parameter data, material usage, HAP usage, volatile matter usage, and solids usage that support data that the source is required to report.

(2) Records specified in § 63.10(b)(3) of this part for each applicability determination performed by the owner or operator in accordance with the requirements of § 63.820(a) of this subpart, and

(3) Records specified in § 63.10(c) of this part for each continuous monitoring system operated by the owner or operator in accordance with the requirements of § 63.828(a) of this subpart.

(c) Each owner or operator of an affected source subject to this subpart shall maintain records of all liquid-liquid material balances performed in accordance with the requirements of §§ 63.824–63.825 of this subpart. The records shall be maintained in accordance with the requirements of § 63.10(b) of this part.

(d) The owner or operator of each facility which commits to the criteria of § 63.820(a)(2) shall maintain records of all required measurements and calculations needed to demonstrate compliance with these criteria, including the mass of all HAP containing materials used and the mass fraction of HAP present in each HAP containing material used, on a monthly basis.

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(e) The owner or operator of each facility which meets the limits and criteria of § 63.821(b)(1) shall maintain records as required in paragraph (e)(1) of this section. The owner or operator of each facility which meets the limits and criteria of § 63.821(b)(2) shall maintain records as required in paragraph (e)(2) of this section. Owners or operators shall maintain these records for five years, and upon request, submit them to the Administrator.

(1) For each facility which meets the criteria of § 63.821(b)(1), the owner or operator shall maintain records of the total volume of each material applied on product and packaging rotogravure or wide-web flexographic printing presses during each month.

(2) For each facility which meets the criteria of § 63.821(b)(2), the owner or operator shall maintain records of the total volume and organic HAP content of each material applied on product and packaging rotogravure or wide-web flexographic printing presses during each month.

(f) The owner or operator choosing to exclude from an affected source, a product and packaging rotogravure or wide-web flexographic press which meets the limits and criteria of § 63.821(a)(2)(ii)(A) shall maintain the records specified in paragraphs (f)(1) and (f)(2) of this section for five years and submit them to the Administrator upon request:

(1) The total mass of each material applied each month on the press, including all inboard and outboard stations, and

(2) The total mass of each material applied each month on the press by product and packaging rotogravure or wide-web flexographic printing operations.

### § 63.830 Reporting requirements.

(a) The reporting provisions of 40 CFR part 63 subpart A of this part that apply and those that do not apply to owners and operators of affected sources subject to this subpart are listed in Table 1 of this subpart.

(b) Each owner or operator of an affected source subject to this subpart shall submit the reports specified in paragraphs (b)(1) through (b)(6) of this section to the Administrator:

(1) An initial notification required in § 63.9(b).

(i) Initial notifications for existing sources shall be submitted no later than one year before the compliance date specified in § 63.826(a).

(ii) Initial notifications for new and reconstructed sources shall be submitted as required by § 63.9(b).

(iii) For the purpose of this subpart, a Title V or part 70 permit application may be used in lieu of the initial notification required under § 63.9(b), provided the same information is contained in the

permit application as required by § 63.9(b), and the State to which the permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of authority from the EPA.

(iv) Permit applications shall be submitted by the same due dates as those specified for the initial notifications.

(2) A Notification of Performance Tests specified in § 63.7 and § 63.9(e) of this part. This notification, and the site-specific test plan required under § 63.7(c)(2) shall identify the operating parameter to be monitored to ensure that the capture efficiency measured during the performance test is maintained. The operating parameter identified in the site-specific test plan shall be considered to be approved unless explicitly disapproved, or unless comments received from the Administrator require monitoring of an alternate parameter.

(3) A Notification of Compliance Status specified in § 63.9(h) of this part.

(4) Performance test reports specified in § 63.10(d)(2) of this part.

(5) Start-up, shutdown, and malfunction reports specified in § 63.10(d)(5) of this part, except that the provisions in subpart A pertaining to start-ups, shutdowns, and malfunctions do not apply unless a control device is used to comply with this subpart.

(i) If actions taken by an owner or operator during a start-up, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are not completely consistent with the procedures specified in the source's start-up, shutdown, and malfunction plan specified in § 63.6(e)(3) of this part, the owner or operator shall state such information in the report. The start-up, shutdown, or malfunction report shall consist of a letter containing the name, title, and signature of the responsible official who is certifying its accuracy, that shall be submitted to the Administrator.

(ii) Separate start-up, shutdown, or malfunction reports are not required if the information is included in the report specified in paragraph (b)(6) of this section.

(6) A summary report specified in § 63.10(e)(3) of this part shall be submitted on a semi-annual basis (i.e., once every six-month period). In addition to a report of operating parameter exceedances as required by § 63.10(e)(3)(i), the summary report shall include, as applicable:

(i) Exceedances of the standards in §§ 63.824–63.825.

(ii) Exceedances of either of the criteria of § 63.820(a)(2).

(iii) Exceedances of the criterion of § 63.821(b)(1) and the criterion of § 63.821(b)(2) in the same month.

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(iv) Exceedances of the criterion of § 63.821(a)(2)(ii)(A).

### § 63.831 Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under 40 CFR part 63 subpart E of this part, the authorities contained in

paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authority which will not be delegated to States: § 63.827(b), approval of alternate test method for organic HAP content determination; § 63.827(c), approval of alternate test method for volatile matter determination.

### §§ 63.832–63.839 [Reserved]

TABLE 1 TO SUBPART KK.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART KK

General provisions reference	Applicable to subpart KK	Comment
§ 63.1(a)(1)–(a)(4) .....	Yes.	
§ 63.1(a)(5) .....	No .....	Section reserved.
§ 63.1(a)(6)–(a)(8) .....	No .....	
§ 63.1(a)(9) .....	No .....	Section reserved.
§ 63.1(a)(10)–(a)(14) .....	Yes.	
§ 63.1(b)(1) .....	No .....	Subpart KK specifies applicability.
§ 63.1(b)(2)–(b)(3) .....	Yes.	
§ 63.1(c)(1) .....	Yes.	
§ 63.1(c)(2) .....	No .....	Area sources are not subject to subpart KK.
§ 63.1(c)(3) .....	No .....	Section reserved.
§ 63.1(c)(4) .....	Yes.	
§ 63.1(c)(5) .....	No .....	
§ 63.1(d) .....	No .....	Section reserved.
§ 63.1(e) .....	Yes.	
§ 63.2 .....	Yes .....	Additional definitions in subpart KK.
§ 63.3(a)–(c) .....	Yes.	
§ 63.4(a)(1)–(a)(3) .....	Yes.	
§ 63.4(a)(4) .....	No .....	Section reserved.
§ 63.4(a)(5) .....	Yes.	
§ 63.4(b)–(c) .....	Yes.	
§ 63.5(a)(1)–(a)(2) .....	Yes.	
§ 63.5(b)(1) .....	Yes.	
§ 63.5(b)(2) .....	No .....	Section reserved.
§ 63.5(b)(3)–(b)(6) .....	Yes.	
§ 63.5(c) .....	No .....	Section reserved.
§ 63.5(d) .....	Yes.	
§ 63.5(e) .....	Yes.	
§ 63.5(f) .....	Yes.	
§ 63.6(a) .....	Yes.	
§ 63.6(b)(1)–(b)(5) .....	Yes.	
§ 63.6(b)(6) .....	No .....	Section reserved.
§ 63.6(b)(7) .....	Yes.	
§ 63.6(c)(1)–(c)(2) .....	Yes.	
§ 63.6(c)(3)–(c)(4) .....	No .....	Sections reserved.
§ 63.6(c)(5) .....	Yes.	
§ 63.6(d) .....	No .....	Section reserved.
§ 63.6(e) .....	Yes .....	Provisions pertaining to start-ups, shutdowns, malfunctions, and CMS do not apply unless an add-on control system is used.
§ 63.6(f) .....	Yes.	
§ 63.6(g) .....	Yes.	
§ 63.6(h) .....	No .....	Subpart KK does not require COMS.
§ 63.6(i)(1)–(i)(14) .....	Yes.	
§ 63.6(i)(15) .....	No .....	Section reserved.
§ 63.6(i)(16) .....	Yes.	
§ 63.6(j) .....	Yes.	
§ 63.7 .....	Yes.	
§ 63.8(a)(1)–(a)(2) .....	Yes.	
§ 63.8(a)(3) .....	No .....	Section reserved.
§ 63.8(a)(4) .....	No .....	Subpart KK specifies the use of solvent recovery devices or oxidizers.
§ 63.8(b) .....	Yes.	
§ 63.8(c)(1)–(3) .....	Yes.	
§ 63.8(c)(4) .....	No .....	Subpart KK specifies CMS sampling requirements.
§ 63.8(c)(5) .....	No .....	Subpart KK does not require COMS.
§ 63.8(c)(6)–(c)(8) .....	Yes .....	Provisions for COMS are not applicable.
§ 63.8(d)–(f) .....	Yes.	
§ 63.8(g) .....	No .....	Subpart KK specifies CMS data reduction requirements.
§ 63.9(a) .....	Yes.	
§ 63.9(b)(1) .....	Yes.	

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TABLE 1 TO SUBPART KK.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART KK—Continued

General provisions reference	Applicable to subpart KK	Comment
§ 63.9(b)(2) .....	Yes .....	Initial notification submission date extended.
§ 63.9(b)(3)–(b)(5) .....	Yes.	
§ 63.9(c)–(e) .....	Yes.	
§ 63.9(f) .....	No .....	Subpart KK does not require opacity and visible emissions observations.
§ 63.9(g) .....	Yes .....	Provisions for COMS are not applicable.
§ 63.9(h)(1)–(h)(3) .....	Yes.	
§ 63.9(h)(4) .....	No .....	Section reserved.
§ 63.9(h)(5)–(h)(6) .....	Yes.	
§ 63.9(i) .....	Yes.	
§ 63.9(j) .....	Yes.	
§ 63.10(a) .....	Yes.	
§ 63.10(b)(1)–(b)(3) .....	Yes.	
§ 63.10(c)(1) .....	Yes.	
§ 63.10(c)(2)–(c)(4) .....	No .....	Sections reserved.
§ 63.10(c)(5)–(c)(8) .....	Yes.	
§ 63.10(c)(9) .....	No .....	Section reserved.
§ 63.10(c)(10)–(c)(15) .....	Yes.	
§ 63.10(d)(1)–(d)(2) .....	Yes.	
§ 63.10(d)(3) .....	No .....	Subpart KK does not require opacity and visible emissions observations.
§ 63.10(d)(4)–(d)(5) .....	Yes.	
§ 63.10(e) .....	Yes .....	Provisions for COMS are not applicable.
§ 63.10(f) .....	Yes.	
§ 63.11 .....	No .....	Subpart KK specifies the use of solvent recovery devices or oxidizers.
§ 63.12 .....	Yes.	
§ 63.13 .....	Yes.	
§ 63.14 .....	Yes.	
§ 63.15 .....	Yes.	

APPENDIX A TO SUBPART KK TO PART 63—DATA QUALITY OBJECTIVE AND LOWER CONFIDENCE LIMIT APPROACHES FOR ALTERNATIVE CAPTURE EFFICIENCY PROTOCOLS AND TEST METHODS

1. Introduction

1.1 Alternative capture efficiency (CE) protocols and test methods that satisfy the criteria of either the data quality objective (DQO) approach or the lower confidence limit (LCL) approach are acceptable under § 63.827(f). The general criteria for alternative CE protocols and test methods to qualify under either the DQO or LCL approach are described in section 2. The DQO approach and criteria specific to the DQO approach are described in section 3. The LCL approach and criteria specific to the LCL approach are described in section 4. The recommended reporting for alternative CE protocols and test methods are presented in section 5. The recommended recordkeeping for alternative CE protocols and test methods are presented in section 6.

1.2 Although the Procedures L, G.1, G.2, F.1, and F.2 in § 52.741 of part 52 were developed for TTE and BE testing, the same procedures can also be used in an alternative CE protocol. For example, a traditional liquid/gas mass balance CE protocol could employ Procedure L to measure liquid VOC input and Procedure G.1 to measure captured VOC.

2. General Criteria for DQO and LCL Approaches

2.1 The following general criteria must be met for an alternative capture efficiency protocol and test methods to qualify under the DQO or LCL approach.

2.2 An alternative CE protocol must consist of at least three valid test runs. Each test run must be at least 20 minutes long. No test run can be longer than 24 hours.

2.3 All test runs must be separate and independent. For example, liquid VOC input and output must be determined independently for each run. The final liquid VOC sample from one run cannot be the initial sample for another run. In addition, liquid input for an entire day cannot be apportioned among test runs based on production.

2.4 Composite liquid samples cannot be used to obtain an “average composition” for a test run. For example, separate initial and final coating samples must be taken and analyzed for each run; initial and final samples cannot be combined prior to analysis to derive an “average composition” for the test run.

2.5 All individual test runs that result in a CE of greater than 105 percent are invalid and must be discarded.

2.6 If the source can demonstrate to the regulatory agency that a test run should not be considered due to an identified testing or analysis error such as spillage of part of the sample during shipping or an upset or improper operating conditions that is not considered part of normal operation then the test result for that individual test run may be discarded. This limited exception allows sources to discard as “outliers” certain individual test runs without replacing them with a valid test run as long as the facility has at least three valid test runs to use when calculating its DQO or LCL. This exception is limited solely to test runs involving the types of errors identified above.

2.7 All valid test runs that are conducted must be included in the average CE determination. The individual test run CE results and average CE results cannot be truncated (i.e., 105 percent cannot be reported as 100+ per-

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cent) for purposes of meeting general or specific criteria for either the DQO or the LCL. If the DQO is satisfied and the average CE is greater than 100, then 100 percent CE must be considered the result of the test.

2.8 Alternative test methods for measuring VOC concentration must include a three-point calibration of the gas analysis instrument in the expected concentration range.

### 3. Data Quality Objective Approach

3.1 The purpose of the DQO is to allow sources to use alternative CE protocols and test methods while ensuring reasonable precision consistent with pertinent requirements of the Clean Air Act. In addition to the general criteria described in section 2, the specific DQO criterion is that the width of the two-sided 95 percent confidence interval of the mean measured value must be less than or equal to 10 percent of the mean measured value (see Figure 1). This ensures that 95 percent of the time, when the DQO is met, the actual CE value will be  $\pm 5$  percent of the mean measured value (assuming that the test protocol is unbiased).

Number of valid test runs, n	$t_{0.975}$	$t_{0.90}$	Number of valid test runs, n	$t_{0.975}$	$t_{0.90}$
1 or 2 .....	N/A	N/A	12	2.201	1.363
3 .....	4.303	1.886	13	2.179	1.356
4 .....	3.182	1.638	14	2.160	1.350
5 .....	2.776	1.533	15	2.145	1.345
6 .....	2.571	1.476	16	2.131	1.341
7 .....	2.447	1.440	17	2.120	1.337
8 .....	2.365	1.415	18	2.110	1.333
9 .....	2.306	1.397	19	2.101	1.330
10 .....	2.262	1.383	20	2.093	1.328
1 .....	12.228	1.372	21	2.086	1.325

3.3 The sample standard deviation and average CE value are calculated using Equations 3 and 4 as follows:  
er30my96.024  
er30my96.025

3.4 The DQO criteria are achieved when all of the general criteria in section 2 are achieved and  $P \leq 5$  percent (i.e., the specific DQO criterion is achieved). In order to meet this objective, facilities may have to conduct more than three test runs. Examples of calculating P, given a finite number of test runs, are shown below. (For purposes of this example it is assumed that all of the general criteria are met.)

3.5 Facility A conducted a CE test using a traditional liquid/gas mass balance and submitted the following results and the calculations shown in Equations 5 and 6:

Run	CE
1 .....	96.1
2 .....	105.0
3 .....	101.2

Therefore:

$n=3$   
 $t_{0.975}=4.30$   
 $\bar{x}_{avg}=100.8$   
 $s=4.51$   
er30my96.026  
er30my96.027

E: EC01MY92.047

3.2 The DQO calculation is made as follows using Equations 1 and 2:

ER30MY96.022

ER30MY96.023

Where:

$a$ =distance from the average measured CE value to the endpoints of the 95-percent (two-sided) confidence interval for the measured value.

$n$ =number of valid test runs.

$P$ =DQO indicator statistic, distance from the average measured CE value to the endpoints of the 95-percent (two-sided) confidence interval, expressed as a percent of the average measured CE value.

$s$ =sample standard deviation.

$t_{0.975}$ = $t$ -value at the 95-percent confidence level (see Table 1).

$\bar{x}_{avg}$ =average measured CE value (calculated from all valid test runs).

$x_i$ =the CE value calculated from the  $i$ th test run.

3.6 Since the facility did not meet the specific DQO criterion, they ran three more test runs.

Run	CE
4 .....	93.2
5 .....	96.2
6 .....	87.6

3.7 The calculations for Runs 1–6 are made as follows using Equations 7 and 8:

$n=6$   
 $t_{0.975}=2.57$   
 $\bar{x}_{avg}=96.6$   
 $s=6.11$   
ER30MY96.028  
ER30MY96.029

3.8 The facility still did not meet the specific DQO criterion. They ran three more test runs with the following results:

Run	CE
7 .....	92.9
8 .....	98.3
9 .....	91.0

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3.9 The calculations for Runs 1–9 are made as follows using Equations 9 and 10:

$n=9$   
 $t_{0.975}=2.31$   
 $\bar{x}_{avg}=95.7$   
 $s=5.33$   
 $ER30MY96.030$   
 $ER30MY96.031$

3.10 Based on these results, the specific DQO criterion is satisfied. Since all of the general criteria were also satisfied, the average CE from the nine test runs can be used to determine compliance.

### 4. Lower Confidence Limit Approach

4.1 The purpose of the LCL approach is to provide sources, that may be performing much better than their applicable regulatory requirement, a screening option by which they can demonstrate compliance. The approach uses less precise methods and avoids additional test runs which might otherwise be needed to meet the specific DQO criterion while still being assured of correctly demonstrating compliance. It is designed to reduce “false positive” or so called “Type II errors” which may erroneously indicate compliance where more variable test methods are employed. Because it encourages CE performance greater than that required in exchange for reduced compliance demonstration burden, the sources that successfully use the LCL approach could produce emission reductions beyond allowable emissions. Thus, it could provide additional benefits to the environment as well.

4.2 The LCL approach compares the 80 percent (two-sided) LCL for the mean measured CE value to the applicable CE regulatory requirement. In addition to the general criteria described in section 2, the specific LCL criteria are that either the LCL be greater than or equal to the applicable CE regulatory requirement or that the specific DQO criterion is met. A more detailed description of the LCL approach follows:

4.3 A source conducts an initial series of at least three runs. The owner or operator may choose to conduct additional test runs following the initial test if desired.

4.4 If all of the general criteria are met and the specific DQO criterion is met, then the average CE value is used to determine compliance.

4.5 If the data meet all of the general criteria, but do not meet the specific DQO criterion; and the average CE, using all valid test runs, is above 100 percent then the test sequence cannot be used to calculate the LCL. At this point the facility has the option of (a) conducting more test runs in hopes of meeting the DQO or of bringing the average CE for all test runs below 100 percent so the LCL can be used or (b) discarding all previous test data and retesting.

4.6 The purpose of the requirement in Section 4.5 is to protect against protocols and test methods which may be inherently biased high. This is important because it is impossible to have an actual CE greater than 100 percent and the LCL approach only looks at the lower end variability of the test results. This is different from the DQO which allows average CE values up to 105 percent because the DQO sets both upper and lower limits on test variability.

4.7 If at any point during testing the results meet the DQO, the average CE can be used for demonstrating compliance with the applicable regulatory requirement.

Similarly, if the average CE is below 100 percent then the LCL can be used for demonstrating compliance with the applicable regulatory requirement without regard to the DQO.

4.8 The LCL is calculated at a 80 percent (two-sided) confidence level as follows using Equation 11:

$ER30MY96.032$

Where:

$LC_1 = LCL$  at a 80 percent (two-sided) confidence level.

$n$  = number of valid test runs.

$s$  = sample standard deviation.

$t_{0.90}$  =  $t$ -value at the 80-percent (two-sided) confidence level (see Table 3-1).

$\bar{x}_{avg}$  = average measured CE value (calculated from all valid test runs).

4.9 The resulting  $LC_1$  is compared to the applicable CE regulatory requirement. If  $LC_1$  exceeds (i.e., is higher than) the applicable regulatory requirement, then a facility is in initial compliance. However, if the  $LC_1$  is below the CE requirement, then the facility must conduct additional test runs. After this point the test results will be evaluated not only looking at the LCL, but also the DQO of  $\pm 5$  percent of the mean at a 95 percent confidence level. If the test results with the additional test runs meet the DQO before the LCL exceeds the applicable CE regulatory requirement, then the average CE value will be compared to the applicable CE regulatory requirement for determination of compliance.

4.10 If there is no specific CE requirement in the applicable regulation, then the applicable CE regulatory requirement is determined based on the applicable regulation and an acceptable destruction efficiency test. If the applicable regulation requires daily compliance and the latest CE compliance demonstration was made using the LCL approach, then the calculated  $LC_1$  will be the highest CE value which a facility is allowed to claim until another CE demonstration test is conducted. This last requirement is necessary to assure both sufficiently reliable test results in all circumstances and the potential environmental benefits referenced above.

4.11 An example of calculating the LCL is shown below. Facility B's applicable regulatory requirement is 85 percent CE. Facility B conducted a CE test using a traditional liquid/gas mass balance and submitted the following results and the calculation shown in Equation 12:

Run	CE
1 .....	94.2
2 .....	97.6
3 .....	90.5

Therefore:

$n=3$   
 $t_{0.90}=1.886$   
 $\bar{x}_{avg}=94.1$   
 $s=3.55$

$ER30MY96.033$

4.12 Since the  $LC_1$  of 90.23 percent is above the applicable regulatory requirement of 85 percent then the facility is in compliance. The facility must continue to accept the  $LC_1$  of 90.23 percent as its CE value until a new series of valid tests is conducted. (The data generated by Facility B do not meet the specific DQO criterion.)

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*5. Recommended Reporting for Alternative CE Protocols*

5.1 If a facility chooses to use alternative CE protocols and test methods that satisfy either the DQO or LCL and the additional criteria in section 4., the following information should be submitted with each test report to the appropriate regulatory agency:

1. A copy of all alternative test methods, including any changes to the EPA reference methods, QA/QC procedures and calibration procedures.
2. A table with information on each liquid sample, including the sample identification, where and when the sample was taken, and the VOC content of the sample;
3. The coating usage for each test run (for protocols in which the liquid VOC input is to be determined);

4. The quantity of captured VOC measured for each test run;

5. The CE calculations and results for each test run;

6. The DQO or LCL calculations and results; and

7. The QA/QC results, including information on calibrations (e.g., how often the instruments were calibrated, the calibration results, and information on calibration gases, if applicable).

*6. Recommended Recordkeeping for Alternative CE Protocols.*

6.1 A record should be kept at the facility of all raw data recorded during the test in a suitable form for submittal to the appropriate regulatory authority upon request.